



1 Figure 4 A, B, C, and D are views and a cross section of the
2 present invention;

3 Figure 5 A, B, and C are views of another embodiment of the
4 present invention;

5 Figure 6 B and F are views of another embodiment of the
6 present invention, Figure 6 H is a view of the hose;

7 Figure 7 B and F are views of a flange;

8 Figure 8 is a cross sectional view of the present invention;

9 Figure 9 is a cross sectional view of the present invention;

10 Figure 10 is a front view of the bearing support;

11 Figures 11 and 11F are a view of another embodiment of the
12 present invention, Figure 11 E is a view of the extended shaft;

13 Figure 12 F, B, S and A, B, C are views of another
14 embodiment of the present invention ;

15 Figure 13 is a view of an attachable handle;

16 Figure 14 is a view of other embodiments of the present
17 invention;

18 Figure 15 is a detailed view of Figure 14;

19 Figure 16 is a schematic of the power train; and,

20 Figure 17 is a view of the clutch arrangement and a view of
21 the flexible shaft sleeve.

22 DESCRIPTION OF A PREFERRED EMBODIMENT

23 Referring now to the drawing, there is illustrated in Figures
24 1A through 1E an embodiment of an arrangement fabricated according
25 to the teaching of the present invention and generally designated 10.

26 Figure 1A illustrates a rotary tool support generally designated 301
27 mountable within a hand piece generally designated 401. The hand
28 piece 401 is fabricated to form a guard around a selected portion of the
29 cutting surface 302. This embodiment is adapted to be attachable to a
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1 inadequate separation between the cutting surface 302 and the fleshy
2 material. An external guard 406 may be mounted on the base 415 to
3 enhance the separation of the fleshy material from the cutting surface
4 302. Posts 422 are mounted near the cutting surface 302. Figures 12
5 A, B and C illustrate three shapes, left, right and balanced, respectively
6 of a type of extended guard 406 which may be removably attached to the
7 base 415 to provide extra separation between the fleshy material and the
8 cutting surface 302. Each extended guard 406 is fabricated with walls
9 423 forming holes engagable with the posts 422. Wall 424 forms an
10 opening to expose the cutting surface 302 and wall 425 forms an
11 opening communicating with the orifice 410. Wall 426 forms a shallow
12 channel in the base 415 into which the lower edge 427 of the extended
13 guard 406 may be inserted. Wall 431 forms a retaining hole in each
14 side of the base 415. A wedge arrangement 428 having an offset head
15 429 and a pin 430 is insertably removable by pin 430 into a selected
16 retaining hole 431 whereby the wedge arrangement 428 is rotated by
17 handle 432 to a position wedging the extended guard 406 securely into
18 place by means of the offset head 429.

19 An attachable handle generally designated 501 is illustrated
20 by Figure 13. This handle may be mounted on the remote end of the 14
21 inch base 415 like a pistol grip to provide a leveraged advantage
22 especially for inserting and guiding the extended arrangement assembled
23 to the rear molars for removing tooth material. This handle incorporates
24 a clamp 502 removably mountable over the end of the base 415 to a
25 position remote from the cap 416. Walls 503 form a threaded hole in the
26 clamp 502 that accepts an extended screw 504 which upon being
27 threaded into threaded hole 503 secures the handle 501 in place as well
28 as preventing movement of clamp 502.

29 Other arrangements that are especially useful for the care of
30 the rear molars is illustrated in Figure 14 and 15. As shown in

1 Figure 15, the base 415 providing support for the shaft 303 within
2 bearing support sleeve 304, all similar to the above embodiments but a
3 set of gears 428 are mounted on the shaft 303 to change the profile of
4 the shaft 303 by ninety degrees. This embodiment is particularly useful
5 with the cut-off disk 310 mounted therein in a position which is
6 essentially horizontal. The cut-off disk can be easily positioned to score
7 a portion of a tooth to be chipped off or used to polish and smooth
8 selected teeth even in the rear portions of the horse's mouth.

9 The arrangement illustrated in Figure 14 is fabricated
10 according to the above teaching but incorporates a set of gears 428
11 mounted within the base 415. The gears 429 are adapted to change the
12 rotational motion of the shaft 303 to a reciprocating motion. In the
13 preferred embodiment, the reciprocating motion is approximately 1/4
14 inch back and forth. A tool pad 430 is removably attachable to a
15 reciprocating tool handle 429. The tool pad 430 has a flat cutting
16 surface and is particularly useful for the care and maintenance of the
17 rear most molars in the horse's mouth. The hand piece 415 may be
18 pistol shaped to supply leverage and to provide adequate mounting for
19 the set of gears 428 within the hand piece 415 at a point that is not
20 inserted into the mouth of the horse.

21 The units in the preferred embodiment are fabricated of a
22 preselected material such as aluminum, chosen to be lightweight,
23 strong, easily machined and able to function in a wet environment. The
24 surface of the aluminum may be anodized to protect the material from
25 corrosion. A lightweight urethane material is preferred for the slip on
26 extended guard 406 shown in Figure 1 C.

27 Figure 16 is a schematic representation of the power train
28 generally designated 201. The basic configuration is a selected motor
29 101. The tools may be mounted directly onto the shaft of the motor 101
30 or separated from the motor 101 by a flexible shaft 204 as discussed

1 above. Both configurations provide a direct connection between the
2 motor 101 and the cutting surface 302 of the tool. In the preferred
3 embodiment of the power train 201, an adjustable torque clutch 206 is
4 included. Should the preselected torque of the clutch 206 be exceeded
5 during use of the arrangement fabricated according to the teachings of
6 this invention, the clutch 206 will disengage the powered motion of the
7 motor 101 from the tool thereby minimizing possible injury to the horse
8 or user and allow the user to safely clear any obstruction of the
9 arrangement before continuing use.

10 Figure 17 illustrates a clutch 206 having a set of clutch
11 plates 207, a torque adjustment knob 208 that sets the tension between
12 the clutch plates 207. An end adapter 209 compatible with the flexible
13 shaft 204 is mounted on the clutch 206 remote from the motor 101. The
14 clutch 206 is mounted within the collet 202 of the motor 101.

15 A clutch housing 210 is fabricated to slip over the clutch
16 206 and onto the motor 101 to a position whereby the end adapter 209
17 is engagable by the end of the flexible shaft 204 which is mounted within
18 the clutch housing 210. A sliding window 211 may be mounted on the
19 clutch housing 210 to allow easy access by the user to the torque
20 adjustment knob 208.

21 Figure 6 illustrates a collar 212 fabricated from stainless
22 steel and mounted on the flexible shaft 204 remote from the end of the
23 flexible shaft mounted to the clutch housing 210. The collar 212 is
24 fabricated with a catch 213 engagable by the latch 413 mounted on the
25 base 415 of the hand piece 401 when the collar 212 is inserted within
26 access channel 418. The rotational motion of the motor 101 is
27 selectively, interruptably transmitted to the clutch 206, through the
28 flexible shaft 204 engagable with the flexible shaft adapter 312 to the
29 cutting surface 302.

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